GreenBuilt Consulting

Utility Incentive Program for Green Building

Background

- **Utilities have committed billions of dollars to conservation, demand-side management, renewable energy, and technology transfer programs since the mid seventies.** These programs have resulted in significant improvements in energy efficiency and technology development throughout the U.S.
- **Green building has, in many ways, replaced and augmented energy efficient building.** "Green" or "sustainable" buildings are sensitive to:
  - Environment
  - Resource and energy consumption
  - Impact on people (quality and healthiness of work environment)
  - Financial impacts (cost-effectiveness from a full financial cost-return perspective)
  - The world at large (a broader set of issues, such as ground water recharge, global warming, etc.)
- **Green building has grown rapidly throughout the US.** It has been about three years since the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program was first launched, and in that time:
  - More than 3,500 companies have joined the U.S. Green Building Council
  - Over 1,000 buildings have registered to build to the LEED standard
  - Myriad agencies have committed to build to the LEED standard, including the GSA, EPA, Army, Navy, Air Force, 10 U.S. states and 22 municipalities, including San Diego, LA, Dallas, and Chicago
- **Sustainable building and interest in LEED is growing quickly in AZ.**
  - There are over 125 LEED accredited professionals in AZ.
  - There are nearly thirty registered LEED buildings in Arizona, including those owned by the State, the Cities of Phoenix and Scottsdale, ASU, NAU, Pima Community College, USAA and General Dynamics.
  - Interest in green building has grown dramatically, with requests for training and support coming from myriad City and State officials, facility directors, school district officials, commercial developers, and design and construction professionals.
  - This is not a fad – it is a diffusion.

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- **Nationally, there are only a handful of utilities with Green Building programs.** While utilities historically lead the way with energy efficiency programs, they are a virtual "no show" in this effort to date.
  - **Seattle City Light**
    - Seattle City Light/Seattle Public Utilities: LEED Incentive Program — provides grants of up to $20,000 for projects committed to achieving a LEED-certified rating, in some cases up to $20,000.
    - Funds can only be applied to soft costs (energy modeling, green charrette, consulting support, etc.)
  - **San Diego Gas & Electric**
    - SDG&E: "Savings by Design" Program – rewards building owners with up to $150,000 per building/meter and design team with up to $50,000 for the **type of energy efficiency addressed by LEED** (program doesn't require, cite or build off of LEED at all)
      - Utility caps incentives at $600,000 per owner per Utility service territory for multiple projects submitted in a program year
  - **PG&E**
    - "Savings by Design" Program (the same as SDG&E, above)
  - **PGE**
    - Portland General Electric: Earth Advantage Commercial Buildings – provides (undefined) services and incentives for buildings that exceed energy codes by 20-40 percent and that apply select checklist measures from several LEED-like categories (IEQ, Environmental Responsibility, Resource Efficiency)
    - LEED is not mentioned. Incentive levels are not mentioned.
  - **SCE**
    - "Savings by Design" Program (the same as SDG&E, above)
  - **Southern California Gas Company**
    - "Savings by Design" Program (the same as SDG&E, above)

Current Situation

- Over 300 utilities through the U.S. have renewable energy incentive programs.
- Results of utility programs are typically lackluster:

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- While 72% of APS customers surveyed indicate they want to see more PV, the APS Solar Power Partners Program has less than 1% of customers subscribing to the program.
- High costs of administration (certification of eligibility, results, etc.) reduce the ultimate impact of these programs.

Proposal

Electric utilities in the State of Arizona should provide incentives to building owners for seeking and receiving green building certification under the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Program. Providing incentives for a Green Building "umbrella" program would help other discrete utility programs become more successful.

Benefits

Green Building provides several key benefits to electric utilities:

- Improved load factor
- Reduced need for facility improvements
- Helps to meet stakeholder mandates

There are several other types of utility programs that would ultimately benefit from the implementation of robust utility Green Building programs:

1. **Conservation**
   a. LEED buildings can earn up to ten points toward certification by constructing buildings that Optimize Energy Performance. *As of August 2003, over half of all new certified buildings built to the LEED 2.0 Standard exceeded the ASHRAE 90.1-1999 Building Energy Standard by at least 27.5%.*
   b. All LEED buildings must implement a prerequisite program of Fundamental Building Systems Commissioning. *40% of the first 40 LEED 2.0 buildings implemented Additional Commissioning to earn another point toward LEED certification.* Research shows that building commissioning reduces energy consumption and electricity peak demand significantly.
2. **Demand-Side Management**
   a. Green buildings built to the LEED standard typically operate with a peak demand that is less than that of a comparable building built to the ASHRAE 90.1-1999 standard.
3. **Electric Vehicles**
   a. Building owners who build to the LEED standard can earn points for installing Alternative Fuel Refueling Stations for vehicles. *As of August 2003, 44% of the LEED 2.0-certified buildings installed alternate fuel refueling stations and earned this LEED point.*

4. **Renewable Energy and Distributed Generation**
    a. LEED buildings earn points for installing Renewable Energy Systems on site. *Nearly 10% of the first 40 LEED 2.0 buildings included renewable energy systems that met at least 5% of the projected annual electricity consumption.*
    b. LEED buildings earn points for purchasing certified Green Power. *26% of the first 40 LEED 2.0 buildings entered into two-year contracts to purchase green power equivalent to 50% of the projected annual electricity consumption.*
5. **Technology Transfer**
    a. High efficiency electro-technologies are often included in green buildings built to the LEED standards.
        i. Under all of the various LEED programs, design teams earn points toward certification for including energy-effective lighting, cooling, heating, ventilation, and building envelope systems that maximize life-cycle cost and optimize local utility tariffs.
        ii. Under the LEED-CI (Commercial Interiors) and LEED-EB (Existing Buildings) programs, design teams earn points for installing energy star office equipment.
        iii. Some "state-of-the-shelf" technologies that are found in LEED buildings include:
            1. Energy recovery ventilation systems
            2. Dimmable high-efficiency fluorescent lighting systems
            3. LED lighting systems
            4. Sophisticated building energy management systems
            5. Fuel cells and renewable energy systems
            6. Ground coupled heat pumps
            7. Variable speed drives
            8. High-efficiency motors and pumps

Other utility benefits:

- Reduced program administration costs
- Integrated approach to myriad end-use utility programs

Potential Program Elements

Utilities should implement a program that covers one or all of the following elements for new and retrofit buildings of a certain size:

1. **Cover cost of LEED project registration**
    a. Incentive:

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i. *$0.01 per square foot, with a maximum of $5,000 per project*

b. Conditions:

i. *Payable at time of project registration*
ii. *Must occur no later than the Schematic Design phase*
iii. *Utility must receive verification of registration*

2. Contribute toward cost of a Green Design Charrette

a. Incentive:

i. *$0.10 per square foot, with a maximum of $5,000 per project*

b. Conditions:

i. *Payable at completion, signified by receipt of final Green Design Charrette results report*
ii. *Must occur no later than the Schematic Design Phase*
iii. *Utility can send an engineer or other representative to participate in the session*

3. Contribute toward cost of Computer Energy Modeling to Optimize Energy Performance

a. Incentive:

i. *$0.10 per square foot, with a maximum of $5,000 per project*

b. Conditions:

i. *Payable at completion, signified by receipt of final Computer Energy Modeling Report*
ii. *Must occur no later than Schematic Design phase*
iii. *Project team must consider high-efficiency chiller options*

4. Cover cost of LEED Certification Fee

a. Incentive:

i. *$0.02 per square foot, with a maximum of $5,000 per project*

b. Conditions:

i. *Payable at time of LEED Certification Package submittal*
ii. *Certification package must be submitted within three months of building occupancy*
iii. *Project must seek at least 4 points in the Optimize Energy Performance category*
iv. *Project must file to receive point for Additional Commissioning*

GreenBuilt Consulting, L.L.C.

I just heard about the meeting on Friday at 9, which I unfortunately cannot make, so I wanted to ship some thoughts to you. While they aren't complete, I'm sure that you will get the gist of it.

My years of experience with APS, EPRI, the Environmental Showcase Home, and with the US Green Building Council have shown me that there may be a "green umbrella" program that should sit over all of the other energy efficiency, DSM, and renewable energy programs.

I've attached a document and given a pitch for the program below.

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Sustainable building is growing quickly in AZ. There are over 125 LEED accredited professionals in AZ and nearly thirty registered LEED buildings. Over the past few months, my partner and I have begun working on LEED projects with about a dozen building owners, including ASU, NAU, General Dynamics, and the City of Scottsdale. We've spoken with many city officials, healthcare facility directors, school district officials, and commercial developers about building to the LEED standard. I really expect this effort to diffuse quickly throughout the market.

Nationally, there are only a handful of utilities with Green Building programs. While utilities historically lead the way with energy efficiency programs, they are a virtual "no show" in this effort to date.

I took a quick look at the green building programs offered by Seattle City Light, Portland General Electric, PG&E, SCE, Southern California Gas Company, and SDG&E. The incentives that these utilities offer for green buildings are very high, ranging from $20,000 - $150,000 per building. Phenomenal! I expect that the California incentives are mandated by the commission.

Why this dearth of utility involvement? Utilities should be involved for the following reasons:

* Show leadership to stakeholders (customers, regulators, investors) who now recognize the benefits of green building
* Promote aspects of green building that result in improved load factors and asset management
* Lend support to other program efforts (conservation, demand management, renewable energy, electric vehicles, technology transfer, etc.)
* It picks up where the Environmental Showcase Home left off!

Basically, utilities should be mandated to develop and launch commercial green building programs that are tied to the LEED program. Incentives could include the following:

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So what do you think? I'd like to hear your thoughts. Let me know when you might have time to get together.

Regards,
Mark

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